PE-2000 USER Manual

PCI Express x4, 2-channel/ 4-channel Gigabit LAN,
IEEE 802.3at Compliant Intel® I210 PoE+ Expansion Card

Vecow

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Order Information

Part Number	Description
PE-2002	Intel® I210 2-CH PCI Express PoE+ Expansion Card
PE-2004	Intel® I210 4-CH PCI Express PoE+ Expansion Card

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1

GENERAL INTRODUCTION

1.1 Overview

PE-2000 is a series of gigabit Ethernet (GigE) card, up to 4 independent channels, and compatible with IEEE 802.3at PoE+ for power sourcing equipment (PSE) devices. Just simply by RJ45 connection, Vecow PE-2000 is enabled to provide not only 10/ 100/ 1000 Mbps gigabit data rate but also up to 25.5W at 48V DC power delivery.

Supporting link aggregation (LAG), 9.5KB Jumbo Frame, IEEE 1588 Precision Time Protocol (PTP) and easy maintenance, PE-2000 is a great solution for Gigabit Ethernet Intelligent Surveillance, Machine Vision, Intelligent Transportation System (ITS), Industrial Automation, Logistic System and any real-time video analytics applications.

1.2 Features

- PCI Express x4 Interface
- IEEE 802.3at compliant for PoE+
- IEEE 1588 Precision Time Protocol (PTP)
- Up to 4 Independent Intel® I210 Gigabit LAN
- Up to 25.5W Power Output at 48V DC per port
- -25°C to 70°C Operating Temperature
- 9.5KB Jumbo Frame
- Link Aggregation
- 16 Isolated DIO for 8 DI & 8 DO (Optional)
- Software Programmable PoE Power Switch (Optional)

1.3 Product Specification

1.3.1 Specifications of Vecow PE-2002

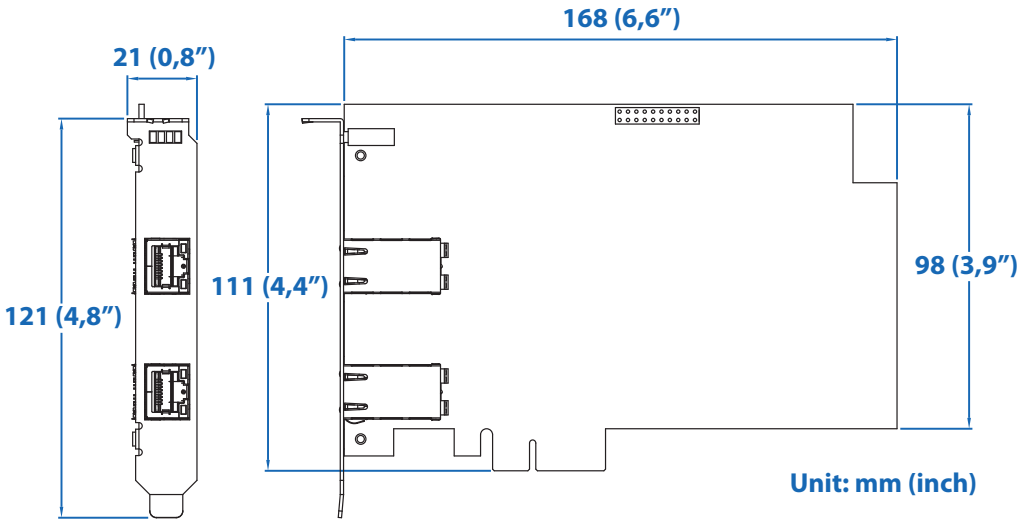
Ethernet	
Interface	PCI Express x4
Chipset	2 Intel® I210 Gigabit LAN
Data Rate	10/ 100/ 1000 Mbps (Vary by attached Ethernet device)
Jumbo Frame	9.5KB
Link Aggregation (LAG)	Present
Connector	8-pin RJ45
PoE Standard	IEEE 802.3at compliant
Power Requirements	
Output	2 PoE Ports, up to 25.5W Power Output at 48V DC per port
Power Connector	1 4-pin ATX 12V Power Connector
DIO	16 Isolated DIO for 8 DI & 8 DO (Optional)
Environment	
Operating Temperature	-25°C to 70°C (-13°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Certifications	FCC, CE, RoHS compliant
Mechanical	
Dimension (W x D x H)	168mm x 121mm x 21mm (6.6" x 4.8" x 0.8")

1.3.2 Specifications of Vecow PE-2004

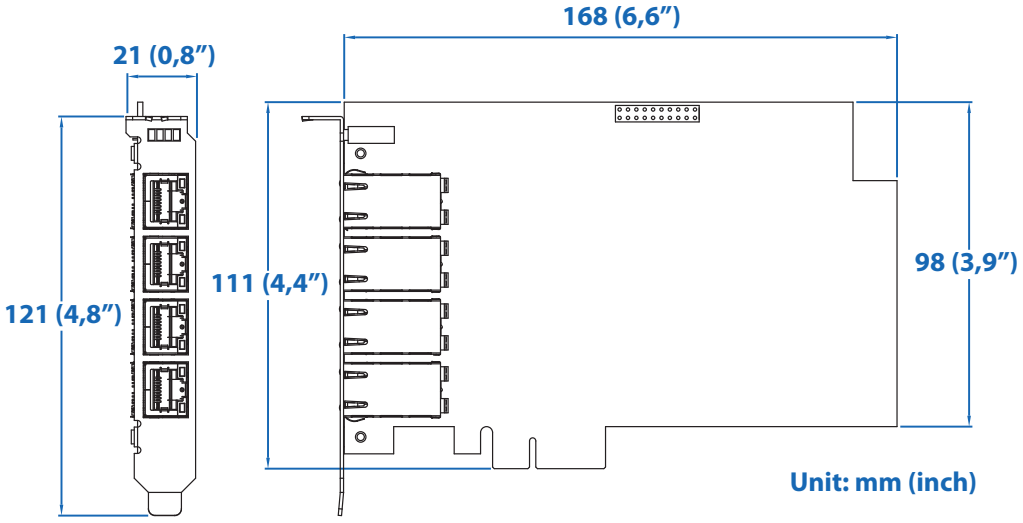
Ethernet	
Interface	PCI Express x4
Chipset	4 Intel® I210 Gigabit LAN
Data Rate	10/ 100/ 1000 Mbps (Vary by attached Ethernet device)
Jumbo Frame	9.5KB
Link Aggregation (LAG)	Present
Connector	8-pin RJ45
PoE Standard	IEEE 802.3at compliant
Power Requirements	
Output	4 PoE Ports, up to 25.5W Power Output at 48V DC per port
Power Connector	1 4-pin ATX 12V Power Connector
DIO	16 Isolated DIO for 8 DI & 8 DO (Optional)
Environment	
Operating Temperature	-25°C to 70°C (-13°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Certifications	FCC, CE, RoHS compliant
Mechanical	
Dimension (W x D x H)	168mm x 121mm x 21mm (6.6" x 4.8" x 0.8")

1.4 Mechanical Dimension

1.4.1 PE-2002



1.4.2 PE-2004



2

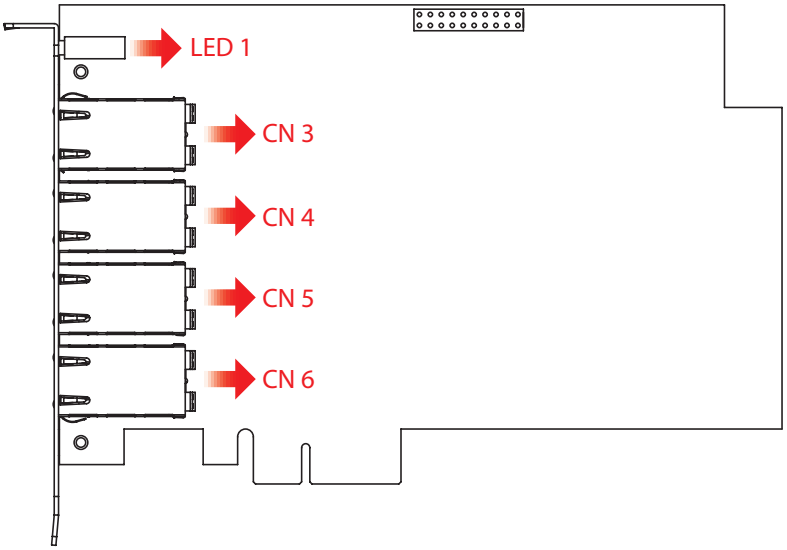
GETTING TO KNOW YOUR PE-2000

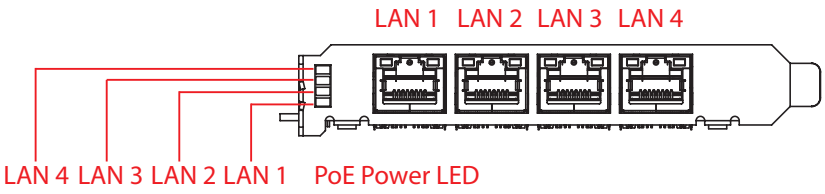
2.1 Packing List

Item	Description	Qty
1	PE-2000, PCI Express x4 PoE+, 2-Channel/ 4-Channel, Gigabit, IEEE 802.3at Compliant Intel® I210 PCI Express Expansion Card (According to the configuration you order.)	1
2	• Accessory box, which contains • Vecow Drivers & Utilities DVD	1

2.2 I/O and Indication

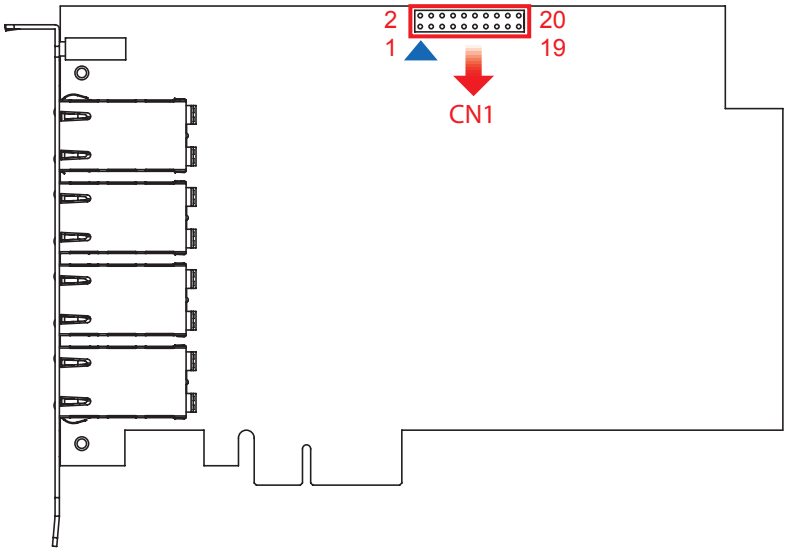
2.2.1 LED1 CN3 CN4 CN5 CN6





PE-2000 equipped with 4 IEEE 802.3at PoE+ ports for transmitting power as much as 25.5W / 48V per port and 1000BASE-T gigabit data signals over standard Ethernet CAT-5/CAT-6 cable. Every PoE port applies one Intel® I210 Gigabit Ethernet controller and independent PCI express interface to connect with multi-core processor for network and data transmit optimization. Only when PoE port starts to supply power to power devices, the dedicated LED will be light on.

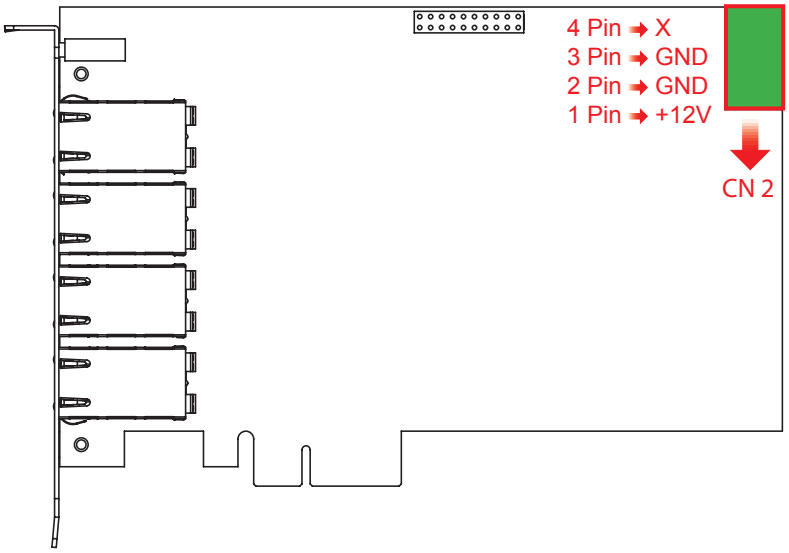
2.2.2 CN1



The PE-2000 offers a 16-bit Isolated DIO (8-DI / 8-DO) connector. Each bit of DI and DO equipped with a photo-coupler for protection. A power buffer device TPD2007F integrated in 8-DO circuit for industrial applications.

Pin No.	Definition	Pin No.	Definition
1	INPUT 0	11	OUTPUT 0
2	INPUT 1	12	OUTPUT 1
3	INPUT 2	13	OUTPUT 2
4	INPUT 3	14	OUTPUT 3
5	INPUT 4	15	OUTPUT 4
6	INPUT 5	16	OUTPUT 5
7	INPUT 6	17	OUTPUT 6
8	INPUT 7	18	OUTPUT 7
9	DI_COM	19	N.C.
10	GND	20	External 24VDC Input

2.2.3 CN2



The PE-2000 also equipped with one 4-pin power plug (12V, 6A max) for additional power supply. For most cases, the power obtained from PCIe bus is sufficient for the PoE devices, and you do not need to supply extra power to the card.

In case the external power is needed, you can use 4-pin ATX power connector (+5V/Red, GND/Black, GND/Black, +12V/Yellow) inside the host computer. Please always confirm the polarity before you plug into the onboard 4-pin power plug.

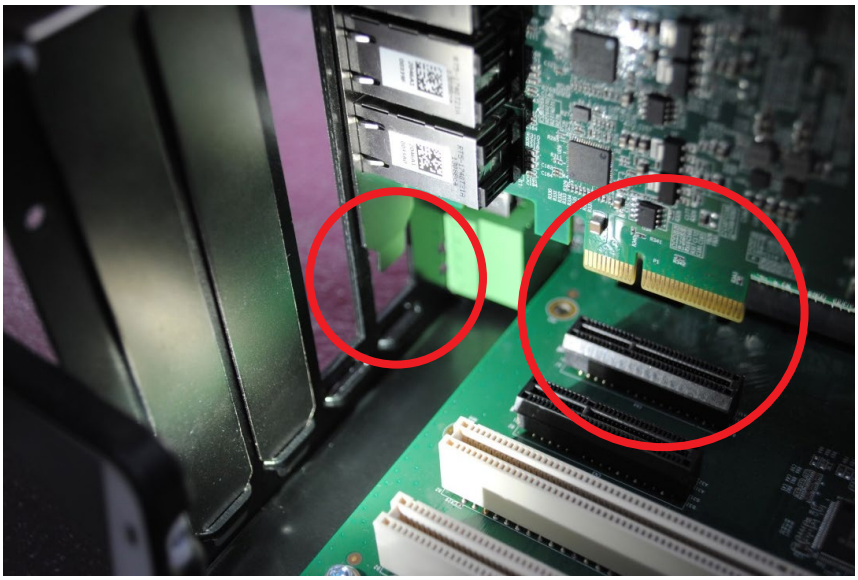
Pin No.	Definition
1	+12V
2	GND
3	GND
4	X

3

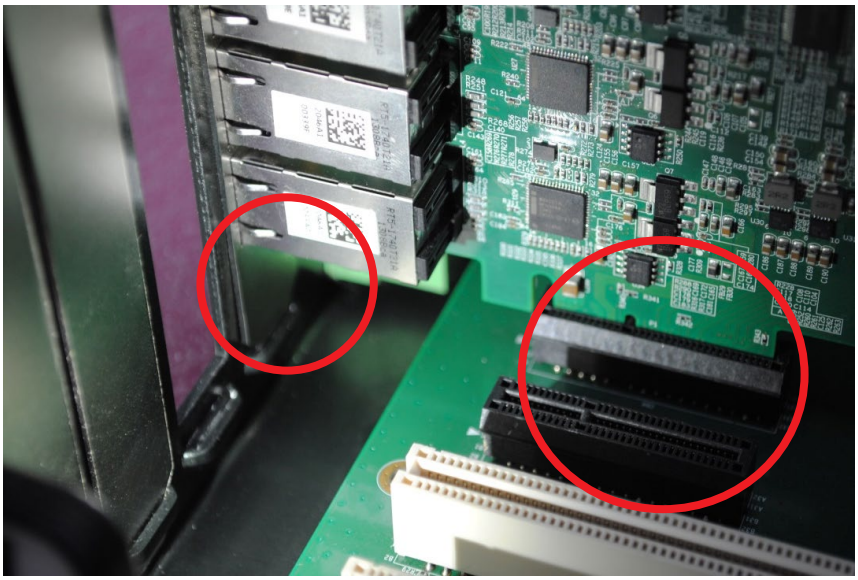
GETTING START

3.1 Installing PE-2002/ PE-2004

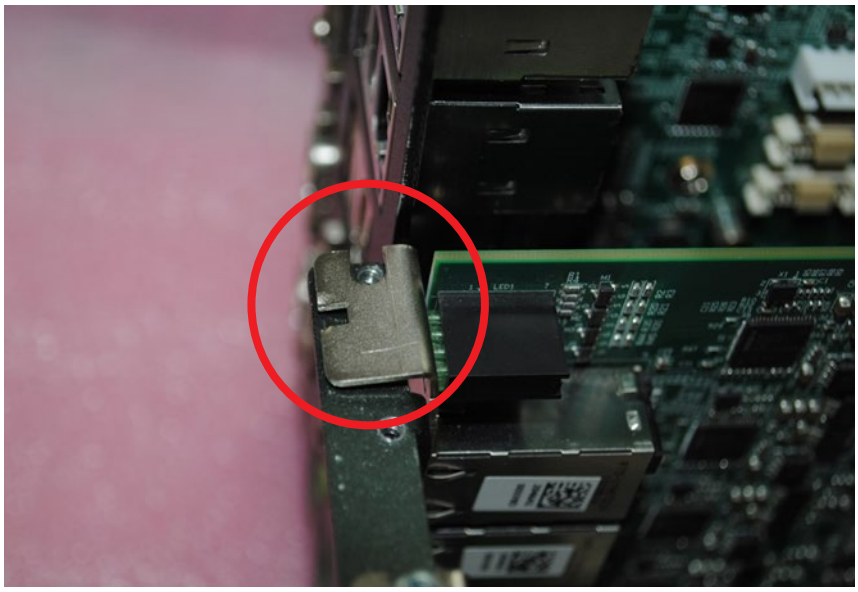
Step 1. Insert PE-2000 golden finger and PCI bracket into PCIe socket carefully.



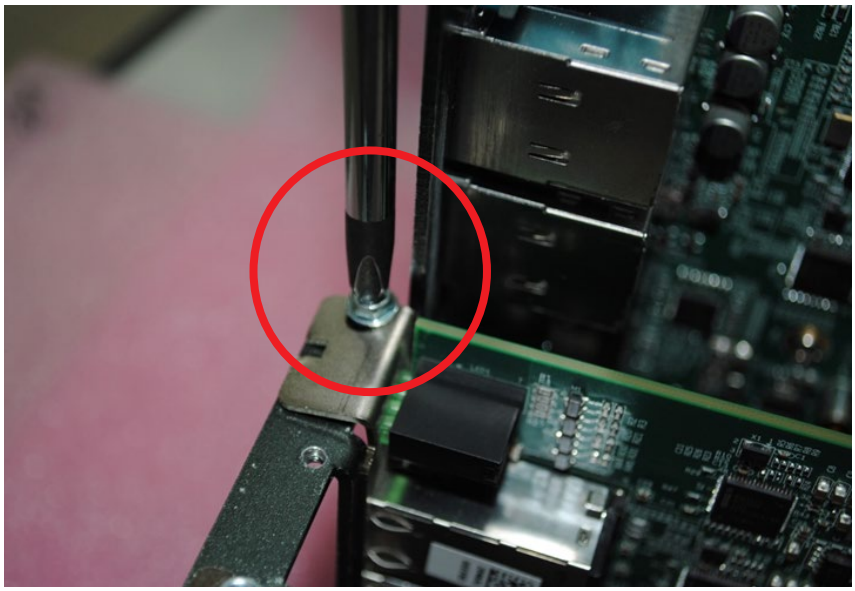
Step 2. Make sure golden finger and PCI bracket was inserted smoothly.



Step 3. Make sure the bracket aligns screw hole.



Step 4. Fasten the M3 screw.



4

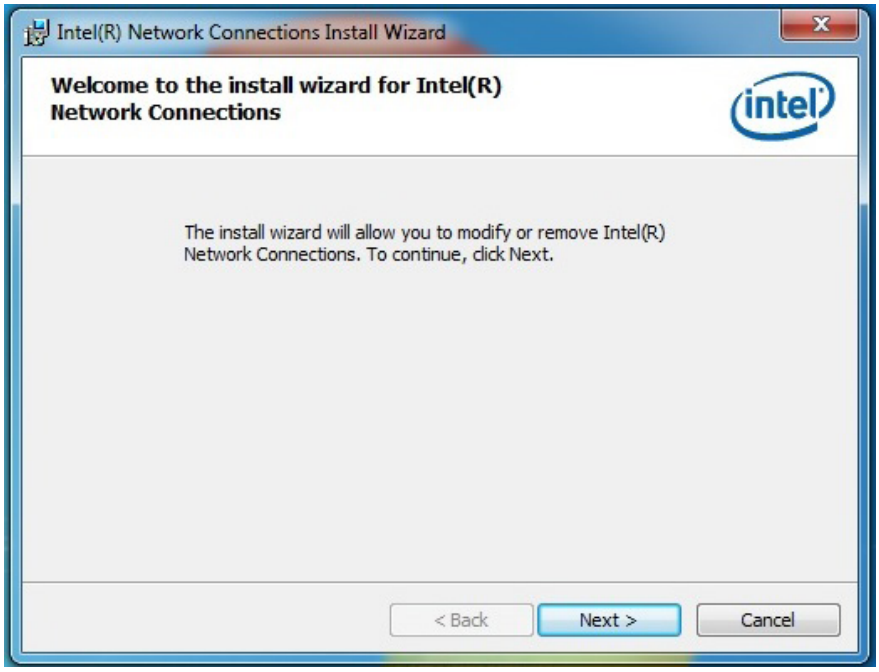
DRIVER INSTALLATION AND SETTING

4.1 Driver Installation

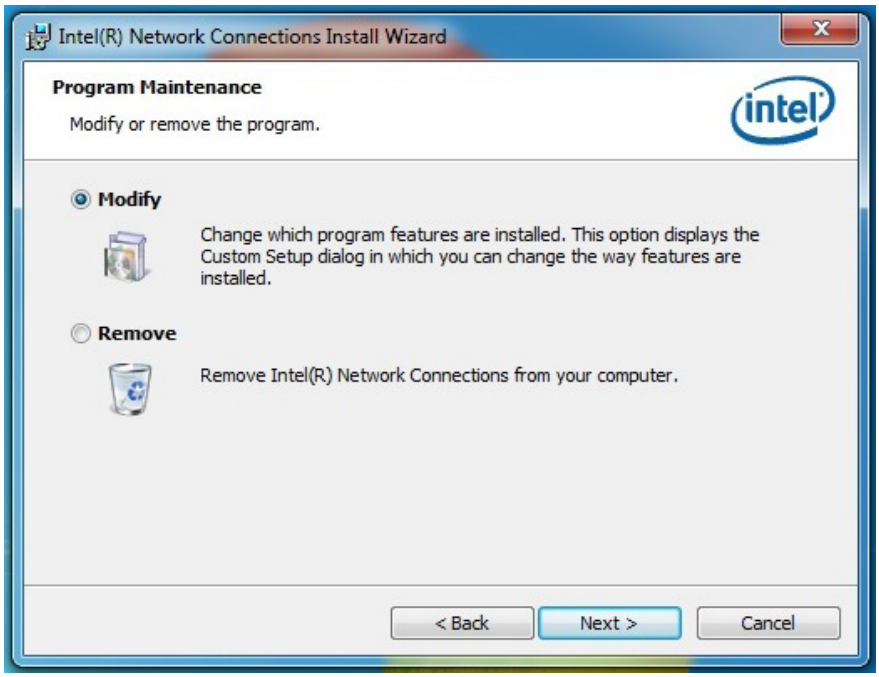
This section describes:
How to install drivers for PE-2002/ PE-2004 PoE Card.

System OS:
Windows XP, Windows 7 32-bit, Windows 7 64-bit, Windows 8.

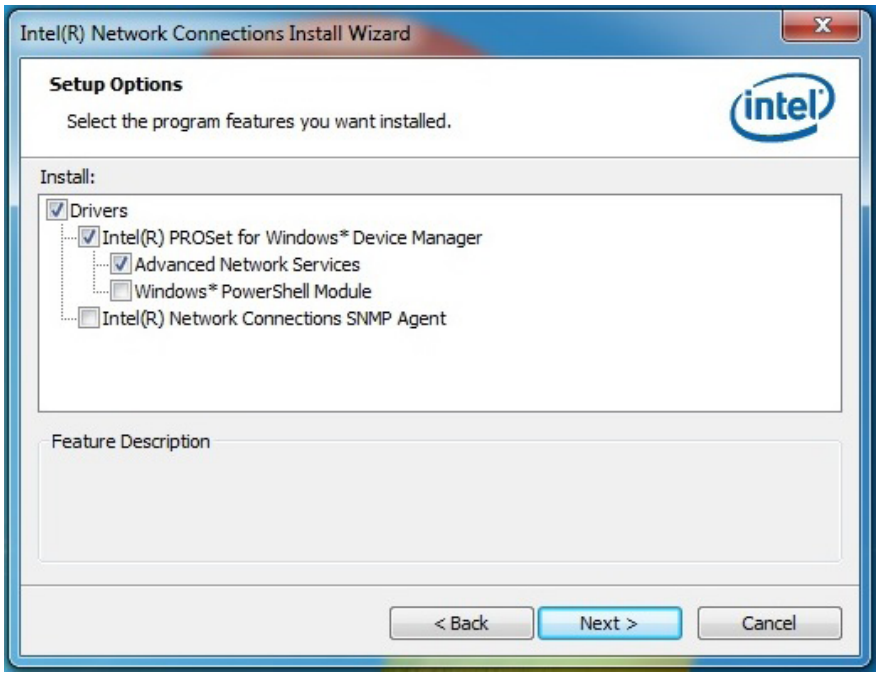
Step 1. Execute Intel_i210_PROWin64.exe and then go "Next" step.


Intel(R) Network Connections Install Wizard
Welcome to the install wizard for Intel(R) Network Connections
intel
The install wizard will allow you to modify or remove Intel(R) Network Connections. To continue, click Next.
< Back
Next >
Cancel

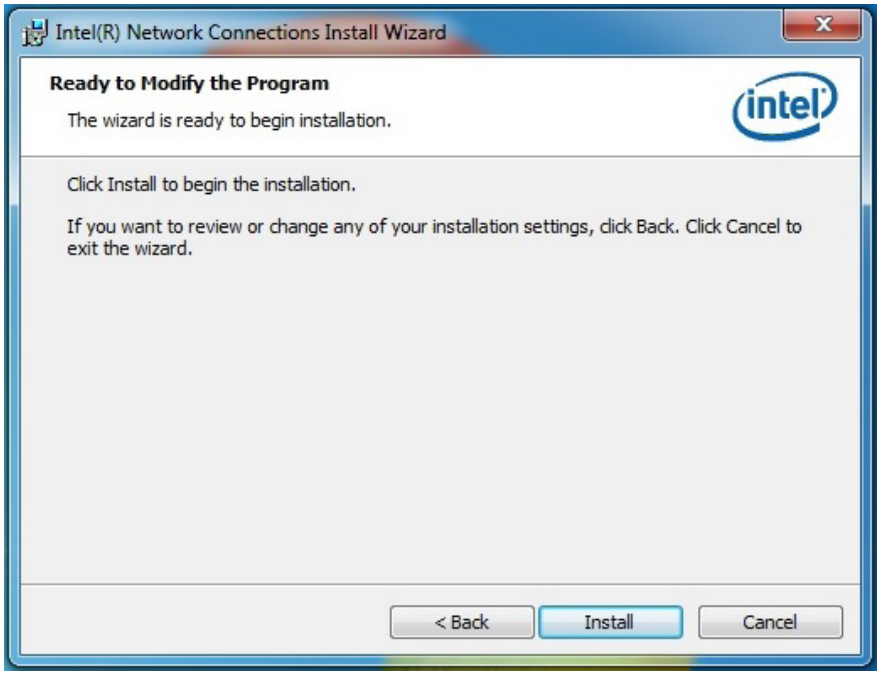
Step 2. Select "Modify" and then go to "Next" step.


Intel(R) Network Connections Install Wizard
Program Maintenance
Modify or remove the program.
intel
Modify
Change which program features are installed. This option displays the Custom Setup dialog in which you can change the way features are installed.
Remove
Remove Intel(R) Network Connections from your computer.
< Back
Next >
Cancel

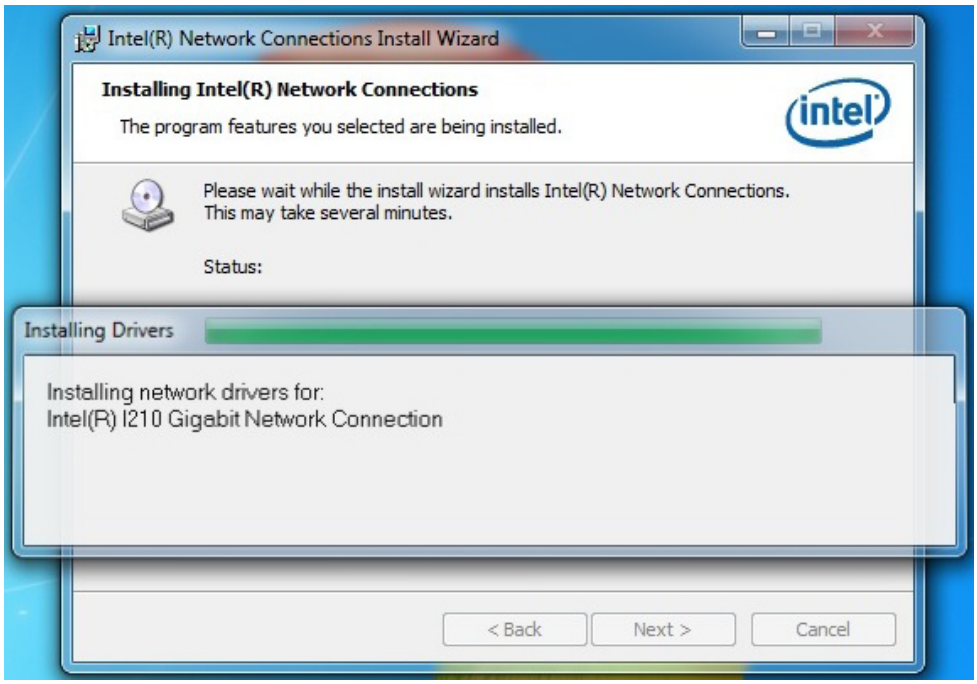
Step 3. Select program features.

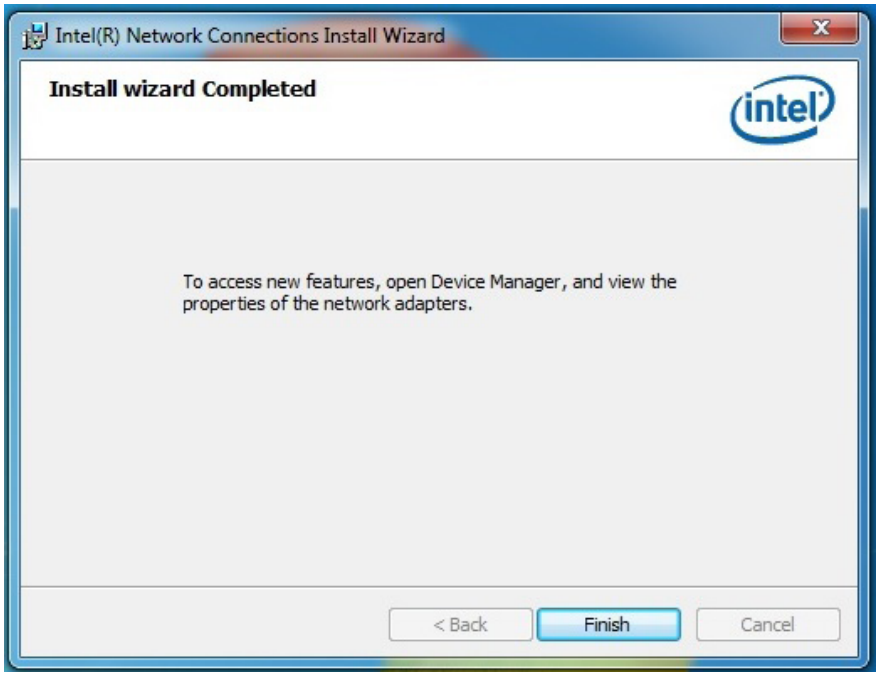


Step 4. Click the "Install" icon to begin the installation.


Intel(R) Network Connections Install Wizard
Ready to Modify the Program
The wizard is ready to begin installation.
intel
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
< Back
Install
Cancel

Step 5. Install wizard completed.


Intel(R) Network Connections Install Wizard
Installing Intel(R) Network Connections
The program features you selected are being installed.
intel
Please wait while the install wizard installs Intel(R) Network Connections.
This may take several minutes.
Status:
Installing Drivers
Installing network drivers for:
Intel(R) I210 Gigabit Network Connection
< Back
Next >
Cancel

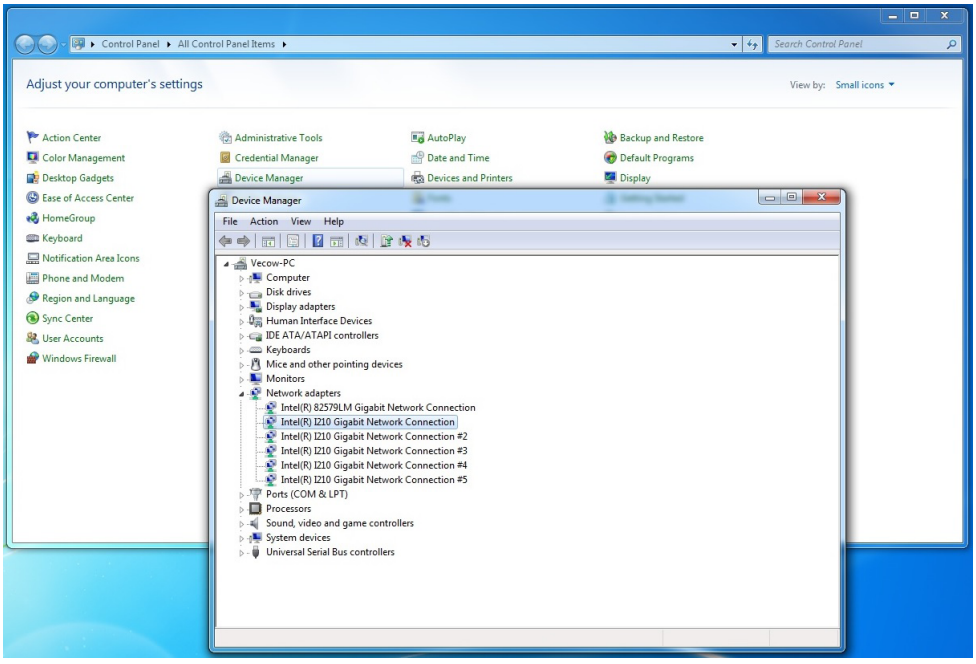

Intel(R) Network Connections Install Wizard
Install wizard Completed
intel
To access new features, open Device Manager, and view the properties of the network adapters.
< Back
Finish
Cancel

Once you need this network driver , you could remove this program on Control panel directly.

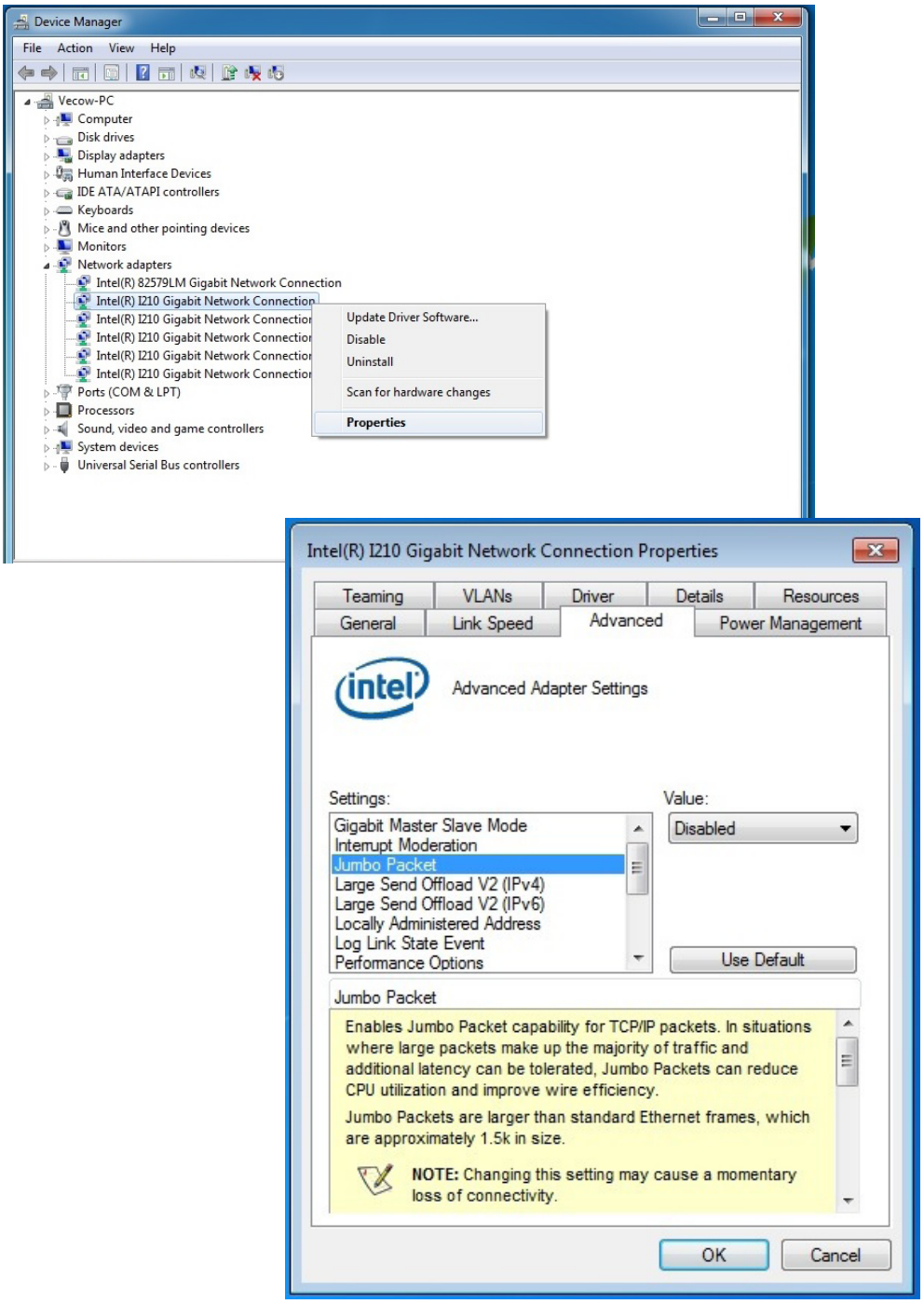
4.2 Jumbo Frame

After installing the driver for Intel® I210 GbE controller, you can get the enhance function that called jumbo frame, please find more instruction as below.

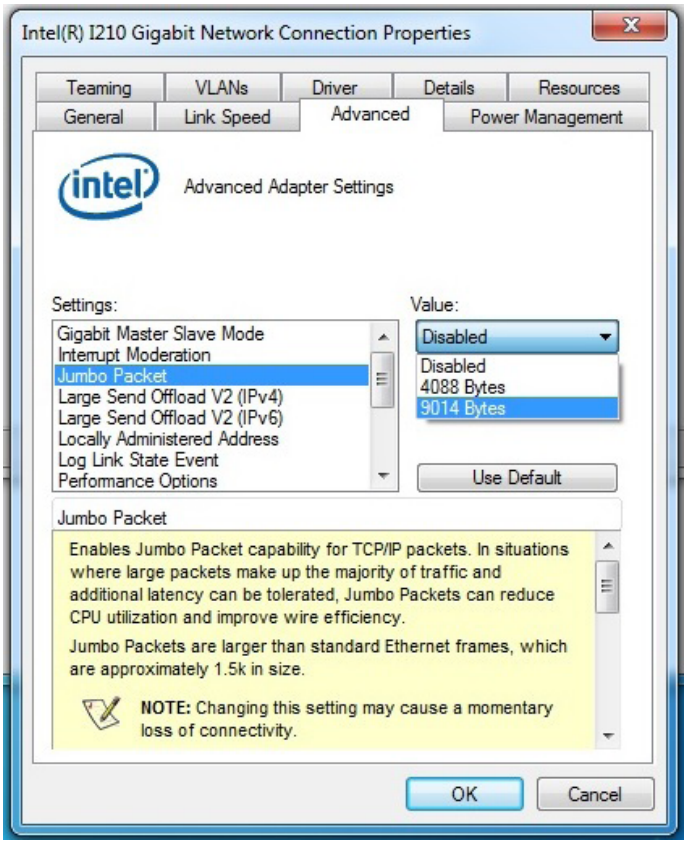
Step 1.
Open the "Control Panel → Device Manager → Network adapters".



Step 2. Select anyone "Intel® I210 Gigabit Network Connection #xx", right Click and select "Properties", a property dialog appears and Click on the Advanced page.

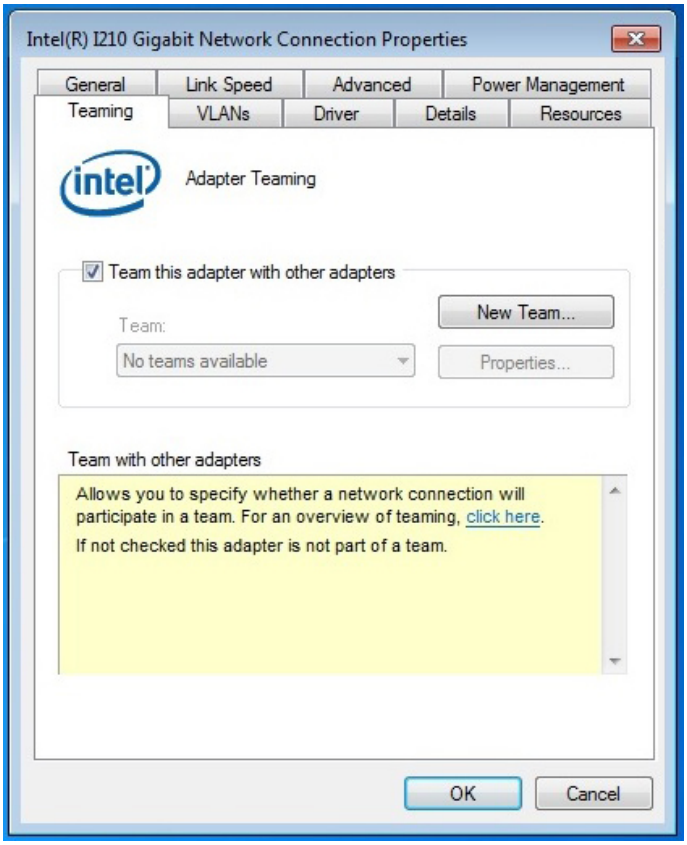


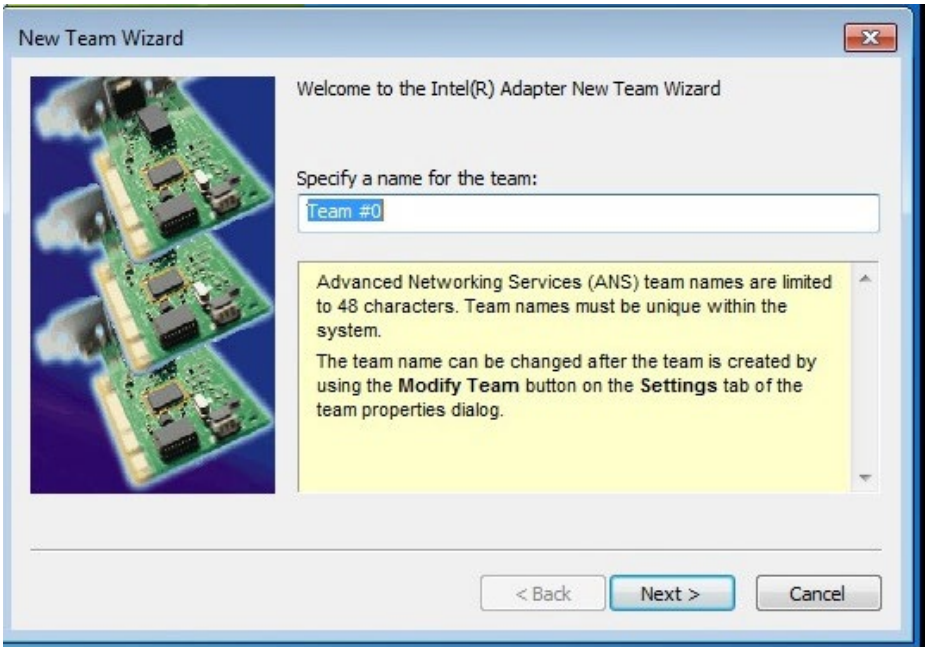
Step 3. Select the "Jumbo Packet", settings, and select the expected jumbo frame size.



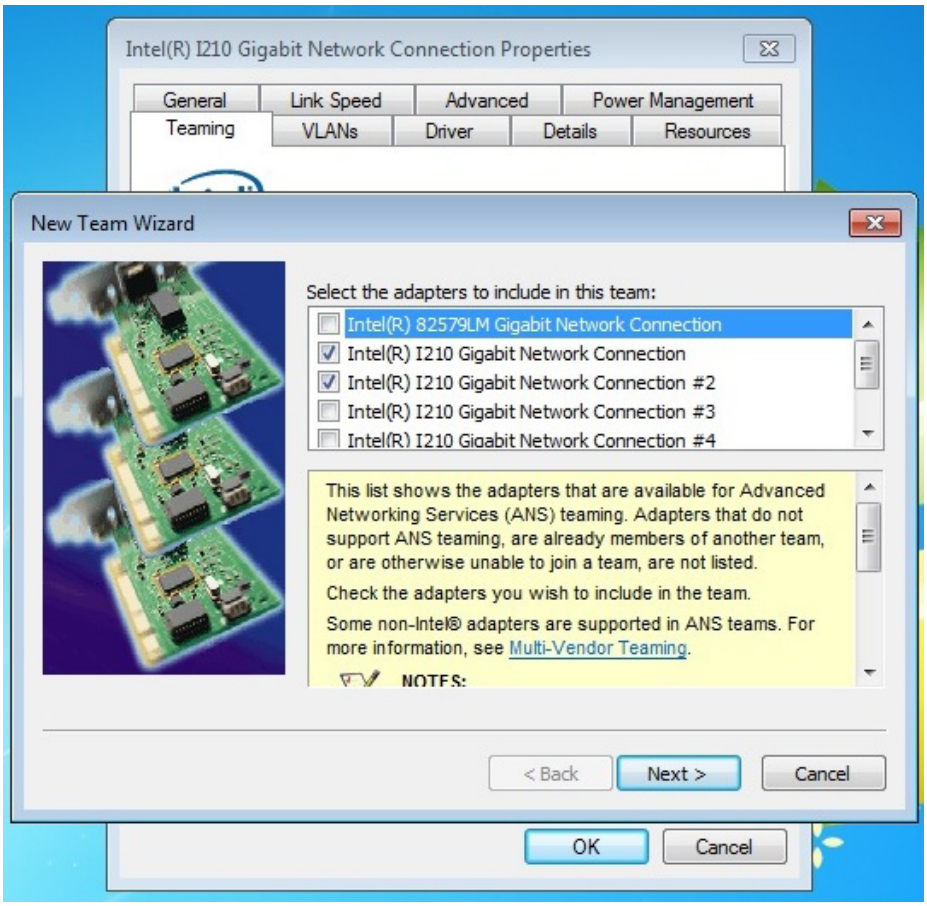
4.3 Link Aggregation

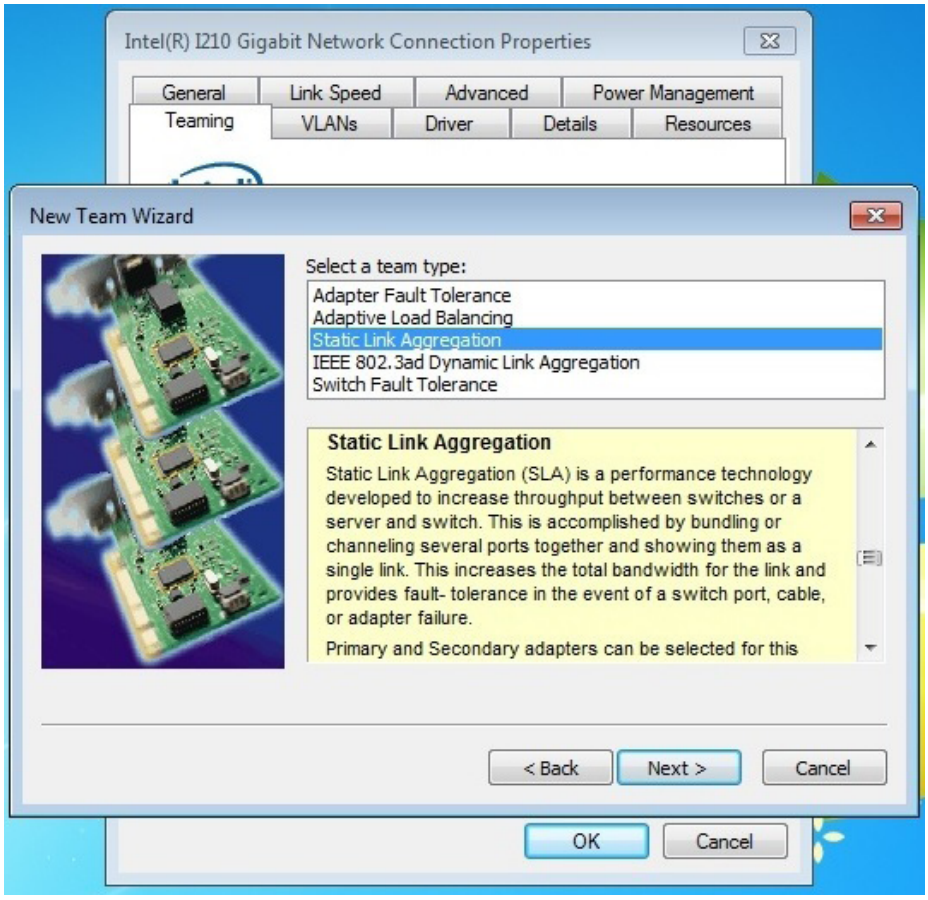
Step 1.
Here shows another enhance network function "Teaming".

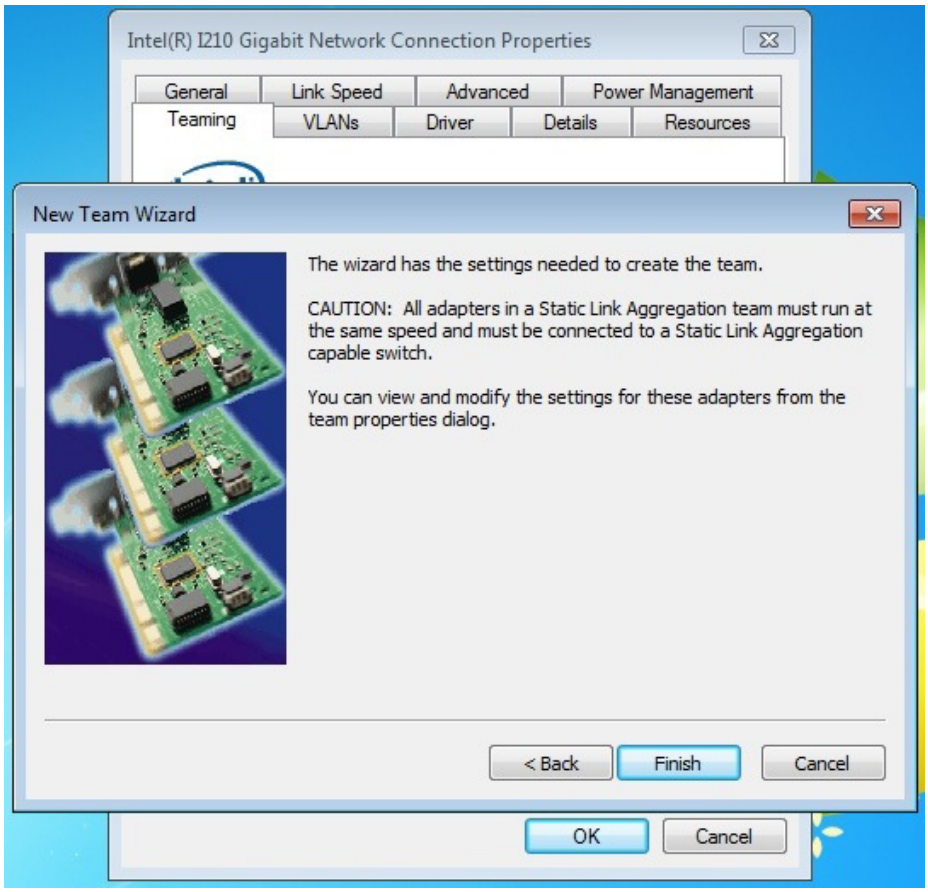



New Team Wizard
Welcome to the Intel(R) Adapter New Team Wizard
Specify a name for the team:
Team #0
Advanced Networking Services (ANS) team names are limited to 48 characters. Team names must be unique within the system.
The team name can be changed after the team is created by using the Modify Team button on the Settings tab of the team properties dialog.
< Back
Next >
Cancel

Step 2. You could multi-select network device to get a high performance net


Intel(R) I210 Gigabit Network Connection Properties
General
Link Speed
Advanced
Power Management
Teaming
VLANs
Driver
Details
Resources
New Team Wizard
Select the adapters to include in this team:
Intel(R) 82579LM Gigabit Network Connection
Intel(R) I210 Gigabit Network Connection
Intel(R) I210 Gigabit Network Connection #2
Intel(R) I210 Gigabit Network Connection #3
Intel(R) I210 Gigabit Network Connection #4
This list shows the adapters that are available for Advanced Networking Services (ANS) teaming. Adapters that do not support ANS teaming, are already members of another team, or are otherwise unable to join a team, are not listed.
Check the adapters you wish to include in the team.
Some non-Intel® adapters are supported in ANS teams. For more information, see Multi-Vendor Teaming.
NOTES:
< Back
Next >
Cancel
OK
Cancel


Intel(R) I210 Gigabit Network Connection Properties
General
Link Speed
Advanced
Power Management
Teaming
VLANs
Driver
Details
Resources
New Team Wizard
Select a team type:
Adapter Fault Tolerance
Adaptive Load Balancing
Static Link Aggregation
IEEE 802.3ad Dynamic Link Aggregation
Switch Fault Tolerance
Static Link Aggregation
Static Link Aggregation (SLA) is a performance technology developed to increase throughput between switches or a server and switch. This is accomplished by bundling or channeling several ports together and showing them as a single link. This increases the total bandwidth for the link and provides fault- tolerance in the event of a switch port, cable, or adapter failure.
Primary and Secondary adapters can be selected for this
< Back
Next >
Cancel
OK
Cancel


Intel(R) I210 Gigabit Network Connection Properties
General
Link Speed
Advanced
Power Management
Teaming
VLANs
Driver
Details
Resources
New Team Wizard
The wizard has the settings needed to create the team.
CAUTION: All adapters in a Static Link Aggregation team must run at the same speed and must be connected to a Static Link Aggregation capable switch.
You can view and modify the settings for these adapters from the team properties dialog.
< Back
Finish
Cancel
OK
Cancel

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For further support information, please visit www.vecow.com

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